

Claims

1. A semiconductor laser comprising a GaN-based semiconductor substrate and laminated layers formed on the GaN-based semiconductor substrate which include a GaN-based semiconductor clad layer containing Al and an active layer formed thereabove,
5 wherein the side surfaces of the laminated layers along the direction of the resonator of the semiconductor laser are inclined in such a direction that the resonator width is decreased from the GaN-based semiconductor substrate side to the upper portion of the laminated layers.
2. The semiconductor laser according to Claim 1, masks are formed on the GaN-based semiconductor substrate and the laminated layers are formed above the masks so that the side surfaces of the laminated layers along the direction of the resonator are from the grown surfaces
5 of the semiconductor layers which have been selectively grown from the masks.
3. The semiconductor laser according to Claim 1, the end surfaces of the resonator of the semiconductor laser are cleavage planes of the GaN-based semiconductor substrate and the laminated layers.
4. A semiconductor laser comprising a GaN-based semiconductor substrate and laminated layers formed on the GaN-based semiconductor substrate which include a GaN-based semiconductor clad layer containing Al and an active layer formed thereabove,

5 wherein there are formed a pair of slots extending in the
direction of the resonator of the semiconductor laser, and
 the active layer is formed in the region sandwiched between
the pair of slots.

5. The semiconductor laser according to Claim 4,
 the laser comprising masks are provided on the bottom surfaces
of the pair of slots,
 wherein the side surfaces of the slots are the grown surfaces
5 of the semiconductor layers which have been selectively grown from
the masks.

6. The semiconductor laser according to Claim 4, the pair of slots
include exposed surfaces of the GaN-based semiconductor clad layer
containing Al and the side surfaces of the slots are inclined in such
a direction that the width between the slots is decreased from the
5 GaN-based semiconductor substrate side to the upper portion of the
laminated layers.

7. A semiconductor laser fabricating method comprising:
 forming laminated layers including a GaN-based semiconductor
clad layer containing Al and an active layer formed thereabove, on
a wafer made of a GaN-based semiconductor;
5 forming plural slots extending in the direction of the resonator
of the semiconductor laser through the laminated layers by selectively
removing the laminated layers;
 cutting the wafer along the direction orthogonal to the

direction in which the slots extend to form bars; and

10 cutting the bars in parallel with the direction in which the
slots extend to separate them into semiconductor laser chips;

 wherein the slots include exposed surfaces of the GaN-based
semiconductor clad layer containing Al and the side surfaces of the
slots are inclined in such a direction that the width between the
15 slots is decreased from the GaN-based semiconductor substrate side
to the upper portion of the laminated layers.

8. The semiconductor laser fabricating method according to Claim
7, wherein the bars are cut at the slots to separate them into the
semiconductor laser chips.

9. The semiconductor laser fabricating method according to Claim
7, wherein the bars are cut at other regions than the slots to separate
them into semiconductor laser chips including a pair of slots.

10. The semiconductor laser fabricating method according to Claim
7, wherein the bar forming step is performed by cleaving.

11. A semiconductor laser fabricating method comprising:

 forming a plurality of stripe-shaped masks extending in a single
direction on a wafer made of a GaN-based semiconductor;

 selectively growing laminated layers including a GaN-based
5 semiconductor clad layer and an active layer formed thereabove from
the opening portions of the masks while forming slots just above the
masks;

cutting the wafer along the direction orthogonal to the direction in which the slots extend to form bars; and

10 cutting the bars in parallel with the direction in which the slots extend to separate them into semiconductor laser chips.

12. A semiconductor laser fabricating method comprising:

forming laminated layers including a GaN-based semiconductor clad layer containing Al and an active layer formed thereabove, on a wafer made of a GaN-based semiconductor;

5 forming plural slots extending in the direction of the resonator of the semiconductor laser through the laminated layers by selectively removing the laminated layers;

cutting the wafer along the direction orthogonal to the direction in which the slots extend to form bars; and

10 cutting the bars in parallel with the direction in which the slots extend at regions other than the slots to separate them into semiconductor laser chips including a pair of slots.